## REMARKS

Claim 50 has been cancelled, and claim 69 has been added. Claims 48 - 49, 51 - 55, 59, 65, 66, 68 and 69 are pending in the application. Claims 48, 51, 52, 59 and 68 have been amended. Applicants gratefully acknowledge the allowance of claims 45-47. No new matter has been added. In view of the above amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable.

Claims 48-50 and 68 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 4,454,886 to Lee in view of U.S. Patent No. 5,279,305 to Zimmerman et al. and U.S. Patent No. 6,001,065 to DeVito. The Examiner states that Lee shows a device with an active electrode, a filter, and a tone generator producing an audio output. Because the device in Lee does not include a radio transmitter or a connection means, the Examiner states that these elements are shown in Zimmerman and DeVito, respectively.

Claim 48 recites a medical system to analyze brain waves of a subject, comprising a medical system to analyze brain waves of a subject comprising "an active EEG (electroencephalograph) electrode detecting a subject's analog brain waves" and a "connection means removably connecting the electrode to a subject's head" in combination with "an amplifier situated on the connection means, the amplifier amplifying the detected brain waves" and "a radio transmitter situated on the connection means, the radio transmitter generating a brain wave broadcast signal based on the detected analog brain waves, the radio transmitter broadcasting the brain wave broadcast signal" and further including "a receiver receiving and amplifying the brain wave broadcast signal" and "*a selectively adjustable filter separating a frequency band from a group of frequency bands in the brain wave broadcast signal to generate a frequency band signal*" and a "*sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves.*"

In contrast, Lee describes a method for generating a sound output signal 24 from brain waves of a patient. For each electrical signal generated by an electrode 14, a band-pass filter 18 eliminates noise lying outside of a predetermined bandwidth. *Lee*, col. 2, lines 14-21. The signal is divided into segments based on time, each segment comprising a train of low-voltage, high-frequency replica signals 41-45 which are identical to one another and have a waveshape similar to the original segment. The output signal 24, comprising a series of trains of replica signals for the entire brain wave signal, is delivered to a loudspeaker 60 for playback. Thus, Lee does not disclose or suggest selection of a particular frequency band within a group of frequency bands. The present invention, on the other hand, allows for selection of a selected frequency band and playback of a sound corresponding to the particular frequency band. While the receiver is receiving the brain wave broadcast signal, the selectively adjustable filter may be used to switch between different frequency bands to hear different sounds, each corresponding to one of the respective bands. Thus, it is respectfully submitted that Lee does not disclose or suggest "*a selectively adjustable filter separating one of a single frequency band and a group of frequency bands from a brain wave frequency spectrum represented by the brain wave broadcast signal to generate a frequency band signal*" and a "*sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves*" as recited in claim 48.

It is respectfully submitted that neither Zimmerman nor DeVito cures the above-described deficiencies of Lee. Zimmerman describes a transmitter 12 which is electrically connected to a plurality of electrodes 16 coupled to the patient's head. Radio frequency transmissions of the electrical signals generated by the electrodes 16 are transmitted to a receiver 14 which displays the signal from each electrode 16 on a display terminal. *Zimmerman*, col. 8, lines 28-41. No where does Zimmerman disclose or suggest filtering or displaying a frequency band selected from a group of frequency bands in the electrical signals from the electrodes 16.

DeVito describes a system for sensing and converting EEG signals into game-play commands. *DeVito*, col. 4, lines 35-49. Electrical signals generated by electrodes 23-25 are

transmitted by a transmitter 30 in a headband 20 to a receiver 40, which performs numerous Fast Fourier Transforms on the signals. *Id.* While DeVito describes the use of a frequency filter for determining a power level within a preselected frequency band, the filter is not "selectively adjustable." In fact, the frequency filter extracts one particular frequency band from the electrical signals and discards the remaining portions. *Id.* at col. 8, lines 13-23. Thus, DeVito teaches away from the present invention by discarding non-selected frequency bands.

Therefore, applicants respectfully submit that neither Lee nor Zimmerman nor DeVito, either alone or in combination, discloses or suggests "*a selectively adjustable filter separating one of a single frequency band and a group of frequency bands from a brain wave frequency spectrum represented by the brain wave broadcast signal to generate a frequency band signal*" and a "*sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves*" as recited in claim 48. Because claim 49 depends from, and, therefore includes all of the limitations of claim 48, it is respectfully submitted that this claim is also allowable.

Claim 68 recites limitations substantially similar to claim 48 including "selectively separating one of a single frequency band and a group of frequency bands from a brain wave frequency spectrum represented by the brain wave broadcast signal to generate a frequency band signal" and "generating a sound based on the frequency band signal using the hand-held receiver." Thus, it is respectfully submitted that claim 68 is also allowable for at least the same reasons stated above in regard to claim 48.

Claims 48-50 and 68 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 3,837,331 to Ross in view of Zimmerman and DeVito. The Examiner states that Ross teaches a device with an active electrode, a filter, and a tone generator producing an audio output but does not disclose a radio transmitter or a connection means, which are shown in Zimmerman and DeVito.

Claim 48 has been recited above. Ross describes a system for training a subject to control his brain wave activity based on EEG signals measured in response to a stimulus. Means 24 outputs a sensory signal (light/sound) to stimulate the subject 10, and the EEG signals are recorded, amplified and filtered. A bandpass filter 18 is used to filter out signals attributable to cardiac and muscular responses to the stimulus. *Ross*, col. 3, line 64 - col. 4, line 14. While the filter 18 may be tuned to a particular frequency band, Ross neither discloses nor suggests that it is "selectively adjustable." That is, the filter 18 utilizes a static setting to extract all noise from the EEG signals. Therefore, it is respectfully submitted that Ross does not disclose or suggest "*a selectively adjustable filter separating one of a single frequency band and a group of frequency bands from a brain wave frequency spectrum represented by the brain wave broadcast signal to generate a frequency band signal*" and a "*sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves*" as recited in claim 48.

Additionally, claim 48 of the present invention recites "a medical system to *analyze* brain waves of a subject." The *analysis* system is distinct from the *control* and *training* system in Ross. The control and training system requires the subject's active involvement and mental concentration, whereas the present invention may be used with passive patient participation (e.g., comatose or unconscious subjects requiring medical analysis). Such a subject is unable to concentrate mentally and thus control its nervous system. As the system of Ross seeks to train a subject to control its nervous system through mental concentration, it is respectfully submitted that this system is not "a medical system to *analyze* brain waves of a subject" as recited in claim 48 of the present invention.

It is respectfully submitted that neither Zimmerman nor DeVito cures the deficiencies of Ross. Further, there is no motivation to combine the cited references as there is no need to broadcast a brain wave signal in the control and training system of Ross. Therefore, there is no showing or suggestion of broadcasting a brain wave signal for medical analysis, as recited in claim 48 of the present invention.

Therefore, applicants respectfully submit that neither Ross nor Zimmerman nor DeVito, either alone or in combination, disclose or suggest "*a selectively adjustable filter separating a frequency band from a group of frequency bands in the brain wave broadcast signal to generate a frequency band signal*" and a "*sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves*" as recited in claim 48. Because claim 49 depends from, and, therefore includes all of the limitations of claim 48, it is respectfully submitted that this claim is also allowable.

Claim 68 recites limitations substantially similar to claim 48 including "selectively separating a frequency band from a group of frequency bands in the brain wave signal to generate a frequency band signal" and "generating a sound based on the frequency band signal using the hand-held receiver." Thus, it is respectfully submitted that claim 68 is also allowable for at least the same reasons stated above in regard to claim 48.

Claim 51 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Ross in view of Zimmerman and DeVito and in further view of U.S. Patent No. 5,241,967 to Yasushi et al. Claim 51 depends from amended claim 48 which recites "a medical system to analyze brain waves of a subject." It is respectfully submitted that Yasushi et al. does not cure the above-described deficiencies of Ross, Zimmerman and DeVito. Specifically, Yasushi describes a system for evoking a desired brain wave from a subject by utilizing a bandpass filter 4 which "passes only a signal corresponding to a brain wave desired to be evoked." *Yasushi*, col. 6, lines 7-8. Yasushi teaches only that the filter 4 may be set for a single brain wave frequency band, e.g., only alpha, only theta or only beta. *Id.* Thus, it is respectfully submitted that Yasushi does not disclose or suggest "*a selectively adjustable filter separating a frequency band from a group of frequency bands in the brain wave broadcast signal to generate a frequency band signal*" and a "*sound generator coupled to the receiver, the sound generator converting the frequency band signal into a sound, corresponding to the analog brain waves*" as recited in claim 48. Because claim 51 depends from, and, therefore includes all of the limitations of claim 48, it is respectfully submitted that this claim is also allowable.

Claims 52, 54, 55 and 65-66 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Zimmerman in view of DeVito.

Claim 52 recites limitations substantially similar to claim 48 including "a selectively adjustable filter separating a frequency band from a group of frequency bands in the brain wave signal to generate a frequency band signal" and "an output device generating an output signal based on the frequency band signal for analysis by an operator to determine the existence of brain dysfunction." The deficiencies of both Zimmerman and DeVito have been described above. Thus, it is respectfully submitted that neither Zimmerman nor DeVito, either alone or in combination, discloses or suggests "a selectively adjustable filter separating a frequency band from a group of frequency bands in the brain wave signal to generate a frequency band signal" and "an output device generating an output signal based on the frequency band signal for analysis by an operator to determine the existence of brain dysfunction." Thus, it is respectfully submitted that claim 52 is allowable. Because claims 54-55 and 65-66 depend from, and, therefore include all of the limitations of claim 52, it is respectfully submitted that these claims are also allowable.

Claim 53 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Zimmerman in view of DeVito and in further view of U.S. Patent No. 3,696,808 to Roy et al. It is respectfully submitted that Roy does not cure the above-described deficiencies of Zimmerman and DeVito. Additionally, one of skill in the art would not be motivated to combine the teachings of remotely controlling a video game using brain signals with the brain wave analysis system of Roy. Thus, because claim 53 depends from, and, therefore includes all of the limitations of claim 52, it is respectfully submitted that this claim is also allowable.

Claim 59 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Zimmerman in view of DeVito in further view of Lee. It is respectfully submitted that Lee does not cure the above-described deficiencies of Zimmerman and DeVito. Thus, because claim 59 depends from,

and, therefore includes all of the limitations of claim 52, it is respectfully submitted that this claim is also allowable.

## CONCLUSION

It is therefore respectfully submitted that all of the pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

Dated: February 14, 2006

By: _____
Oleg F. Kaplun (Reg. No. 45,559)

Fay Kaplun & Marcin, LLP
150 Broadway, Suite 702
New York, NY 10038
Tel: (212) 619-6000
Fax: (212) 208-6819